

REMARKS

The rejections under 35 U.S.C. §103(a) of Claims 2, 4-7, 9-12, 18-22 and 24-29 as unpatentable over U.S. 6,025,055 (Bouilloux et al); of Claim 23 over Bouilloux et al in view of U.S. 4,755,552 (Jadamus et al); and of Claims 14-16 over Bouilloux et al in view of U.S. Lausberg et al, are respectfully traversed.

The present invention relates to a flexible pipe having high dimensional stability, good recovery performance and good resistance to fluid media.

The discovery of the present invention is an improved molding composition, which is especially useful for the preparation of the interior walls of flexible plastic pipes, which not only exhibit high dimensional stability and good recovery performance, but also good resistance to fluid media, particularly alcoholic media.

The embodiment of the invention as claimed in Claim 14 is directed to a molding composition comprising a polymeric composition consisting of the following components:

- I. from 40 to 80 parts by weight of a polyamide selected from the group consisting of PA 612, PA 1012, PA 11, PA 12 and PA 1212, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chains consist of carbon atoms, wherein the amounts of I and II in parts by weight total 100, and wherein the composition when in the form of granules comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100 percent ethanol under reflux conditions, the tensile modulus of elasticity of the composition ranging from 200 to 950 N/mm².

In another embodiment of the invention as claimed in Claim 18, a pipe is claimed whose interior wall structural component is comprised of a polymeric composition consisting of:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 46, PA 66, PA 610, PA 1010, PA 612, PA 1012, PA 11, PA 12, PA 1212, and PA 6,3-T, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chain consist of carbon atoms,

where the amounts of I and II in parts by weight total 100, and wherein the interior wall component is obtained from a molding composition, which composition when in the form of granules, comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100% ethanol under reflux conditions, the pipe being useful for the piping of aqueous, aqueous-alcoholic or purely alcoholic liquids.

Bouilloux et al disclose compositions suitable for extrusion blow molding to form, e.g., flexible pipes, comprising a matrix of an alloy of a polyamide and a polymer having polyamide blocks and polyether blocks, dispersed in which matrix is a cross-linked phase, the composition having a particular melt strength and flexural modulus (column 2, lines 44-50).

Bouilloux et al disclose another embodiment of an extrusion blow-molded article comprising the above composition and another part which may be a mixture of a polyamide and a polyolefin, being welded to one another at their contact surface (column 8, lines 35-42).

The above-amended claims clearly indicate that the presently-claimed invention excludes the chemical structure of a matrix of a polyamide/polyamide-polyether alloy with dispersed cross-linked phase, as disclosed by Bouilloux et al.

Nor is it relevant that polyamide 6,3-T is part of the polyamide condensation product family, absent a disclosure or suggestion in the applied prior art to use such a polyamide. Nor is it necessarily inferable that Bouilloux et al's composition, when in the form of granules, comprises not more than 2% by weight of extractables, measured by extracting the granules

with hot 100% ethanol under reflux conditions, as required by the present claims, simply because the pipes of Bouilloux et al are disclosed, for example, for carrying coolants.

Jadamus et al does not remedy the above-discussed deficiencies of Bouilloux et al. Jadamus et al is concerned with impact-resistant polyamide molding compounds, wherein a polyamide is combined with a polyalkenamer. Contrary to the finding by the Examiner, Jadamus et al do not disclose or suggest any equivalence between their polyalkenamers and, for example, polyethylene, let alone that they are equivalent in terms of flexibility. While the Examiner now relies on the disclosure at column 1, lines 35-45 as disclosing such equivalence, this disclosure simply indicates that polyamide-polyolefin blends were old; no disclosure of equivalence between polyolefin and polyalkenamer is present. Moreover, Jadamus et al disclose nothing with regard to flexibility. Clearly, one skilled in the art would not combine the references without the present disclosure as a guide. Even if one skilled in the art did combine these references, the result would still not be the presently-claimed invention since, as discussed above, the present invention does not involve the matrix of a particular alloy having a cross-linked phase therein as disclosed by Bouilloux et al.

Lausberg et al discloses a polypropylene/polyamide molding composition. The polypropylene may be a polypropylene homopolymer and/or copolymer. The Examiner relies on Lausberg et al's disclosure of a tensile modulus of elasticity of greater than 300 N/mm² (column 3, lines 18-19). However, the disclosed tensile modulus of elasticity is for a particular polypropylene homopolymer (column 3, lines 13-19). Lausberg et al disclose and suggest nothing with regard to the tensile modulus of elasticity of their molding composition *per se*. Clearly, one skilled in the art would not combine the references without the present disclosure as a guide. Even if one skilled in the art did combine these references, the result would still not be the presently-claimed invention since, as discussed above, the present

invention does not involve the matrix of a particular alloy having a cross-linked phase therein as disclosed by Bouilloux et al.

For all the above reasons, it is respectfully requested that the rejections over prior art be withdrawn.

The rejection of Claims 2, 4-6, 9-12, and 14-29 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. The prefix “PA” is well-known in the field of polyamides. Indeed, the applied prior art indicates as much. It is believed that while “PA” generally stands for “polyamide”, the term “nylon” has also been used. Nevertheless, terms such as PA12, PA612, etc., are well-defined in the art. Accordingly, it is respectfully requested that this rejection be withdrawn.

Applicants gratefully acknowledge the Examiner’s indication of allowability of the subject matter of Claim 17. Claim 17 has been amended into independent form. Nevertheless, all of the presently-pending claims in this application are now believed to be in

immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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HEREWITH

IN THE CLAIMS

14. (Thrice amended) A molding composition which comprises a polymeric composition consisting of the following constituents:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 612, PA 1012, PA 11, PA 12 and PA 1212, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chain consists of carbon atoms, wherein the amounts of I and II in parts by weight total 100, and wherein the composition when in the form of granules comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100 percent ethanol under reflux conditions, the tensile modulus of elasticity of the composition ranging from 200 to 950 N/mm².

17. (Twice amended) A method of manufacturing screen wash systems and head lamp wash systems of motor vehicles, comprising:

fabricating the pipe components of said screen wash systems and head lamp wash systems from [the pipe of Claim 18] a pipe whose interior wall structural component is comprised of:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 46, PA 66, PA 610, PA 1010, PA 612, PA 1012, PA 11, PA 12, PA 1212, and PA 6,3-T, and

II. from 60 to 20 parts by weight of a flexible polymer whose main chain consists of carbon atoms,

where the amounts of I and II in parts by weight total 100, and wherein the interior wall component is obtained from a molding composition, which composition when in the form of granules, comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100% ethanol under reflux conditions, the pipe being useful for the piping of aqueous, aqueous-alcoholic or purely alcoholic liquids.

18. (Thrice amended) A pipe whose interior wall structural component is comprised of a polymeric composition consisting of:

- I. from 40 to 80 parts by weight of at least one polyamide selected from the group consisting of PA 46, PA 66, PA 610, PA 1010, PA 612, PA 1012, PA 11, PA 12, PA 1212, and PA 6,3-T, and
- II. from 60 to 20 parts by weight of a flexible polymer whose main chain consists of carbon atoms,

where the amounts of I and II in parts by weight total 100, and wherein the interior wall component is obtained from a molding composition, which composition when in the form of granules, comprises not more than 2% by weight of extractables, measured by extracting the granules with hot 100% ethanol under reflux conditions, the pipe being useful for the piping of aqueous, aqueous-alcoholic or purely alcoholic liquids.

Claims 30-32 (New)